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2004 MICHIGAN FALL TURKEY HUNTER SURVEY

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ABSTRACT

A survey of turkey hunters was conducted following the 2004 fall hunting season to determine turkey harvest and hunter participation. During the 2004 fall hunt, an estimated 16,200 hunters harvested about 4,900 turkeys. Harvest decreased 2% between 2003 and 2004 largely because hunter success declined. About 30% of hunters successfully harvested a turkey in 2004, compared to 33% in 2003. About 59% of the hunters rated their hunting experience as excellent, very good, or good.

INTRODUCTION

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to maintain turkey populations at levels matching biological and social carrying capacities. In 2004, 15 management units totaling 31,939 square miles were open for fall turkey hunting during October 4-November 9 (Figure 1). Compared to last fall, hunting was permitted in nine additional counties (Alcona, Antrim, Charlevoix, Cheboygan, Emmet, Iosco, Otsego, Presque Isle, and St. Clair counties) in 2004.

People interested in obtaining a hunting license for the fall season could enter into a random license drawing conducted by the Department of Natural Resources. Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-serve basis to applicants that were unsuccessful in the drawing. Then beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for nine management units (G, GA, GB, J, L, M, N, O, and W; Table 1). Licenses for units E, G, GA, GB, GC, Q, T, and WA were valid on private lands only, while licenses for units A, J, L, M, N, O, and W were valid on either



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land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with their license.

The Wildlife Division has the authority and responsibility to protect and manage the wildlife resources of the State of Michigan. Harvest surveys are one of the primary management tools used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

METHODS

The Wildlife Division provided hunters the option to voluntarily report information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulation booklet. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and whether they harvested a turkey. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of the harvested bird. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults (≥ 1 year old). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2004 fall turkey hunting season, a questionnaire was sent to 4,717 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey licenses) and had not already voluntarily reported harvest information via the Internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the Internet.

Estimates were calculated using a stratified random sampling design that included 16 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (15 management units). Hunters that had voluntarily reported information about their hunting activity via the Internet were treated as a separate stratum.

Because estimates were based on information collected from random samples of hunting license buyers, these estimates were subject to sampling errors (Cochran 1977). Thus, a 95% confidence limit (CL) was calculated for each estimate. In theory, this confidence limit can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies that the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Questionnaires were mailed initially during mid-November 2004, and up to two follow-up questionnaires were mailed to nonrespondents. Although 4,717 people were sent the questionnaire, 44 surveys were undeliverable resulting in an adjusted sample size of 4,673. Questionnaires were returned by 4,013 people, yielding an 85% adjusted response rate. In addition, 98 people voluntarily reported information about their hunting activity via the Internet.

RESULTS

In 2004, the Wildlife Division offered 40,800 licenses for sale, and hunters purchased 20,138 licenses for the fall turkey hunting season (Table 1). Licensees included 14,537 people that were successful in the drawing for a license and 655 applicants that were unsuccessful in the drawing. In addition, 4,946 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2004 increased 6% from 2003. In 2004, about 16,219 hunters spent 84,629 days afield pursuing turkeys ($\bar{x} = 5.2 \pm 0.2$ days/hunter) and harvested 4,913 birds (Table 2). About 95% of the hunters that went afield were men ($15,448 \pm 305$), and 5% of the hunters were women (771 ± 132). The average age of the license buyers was 47 years (Figure 2). About 5% of the license buyers were younger than 17 years old (1,073).

The number of people pursuing turkeys increased 7% from last year. This increase occurred because more licenses were available for sale (i.e., license quota increased 17%). Moreover, the area open to hunting increased 21%, from 26,424 to 31,939 square miles.

Hunter success was 30% in 2004, compared to 33% success in 2003. However, hunter success is not directly comparable between years because the area and number of management units open to hunting changed between 2003 and 2004. The area of 12 management units was the same in both 2003 and 2004 (E, G, GA, GB, GC, L, M, N, O, T, W, and WA). Hunter success in these 12 units was $33 \pm 2\%$ in 2003 and $31 \pm 2\%$ in 2004. Thus, hunter success appeared to be similar or slightly less between 2003 and 2004.

Harvest decreased 2% between 2003 and 2004 (Figure 3). Harvest decreased primarily because hunter success declined statewide. Counties with hunters taking 200 or more turkeys included Montcalm, Barry, Calhoun, Kent, and Delta (Table 3).

About 92% of turkey hunters hunted solely on private land, 5% hunted on public land only, and 3% hunted on both private and public lands (Table 4). Of the 4,913 turkeys harvested in 2004, 96% of these birds were taken on private land (4,707), while about 4% of the harvest (203) was taken on public land (Tables 5 and 6). Additionally, a few birds (3) were harvested from land of unknown ownership. About 59% of the harvested birds had a beard ($2,882 \pm 243$). Most of these bearded birds (81%) were adults ($2,318 \pm 222$); 18% were juvenile birds (521 ± 110).

Of the 16,219 turkey hunters in 2004, nearly $59 \pm 2\%$ rated their hunting experience as either excellent ($2,082 \pm 218$), very good ($2,792 \pm 252$), or good ($4,772 \pm 311$) (Table 7). About $20 \pm 2\%$ of the hunters rated their experience as fair ($3,253 \pm 256$ hunters), while $18 \pm 2\%$ of the hunters rated their experience as poor ($2,955 \pm 256$ hunters). Additionally, about 2% of the hunters (366 ± 105 hunters) failed to rate their hunting experience.

Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2003 and 2004, hunter success decreased from 33% to 30%, and satisfaction decreased from 64% to 59%.

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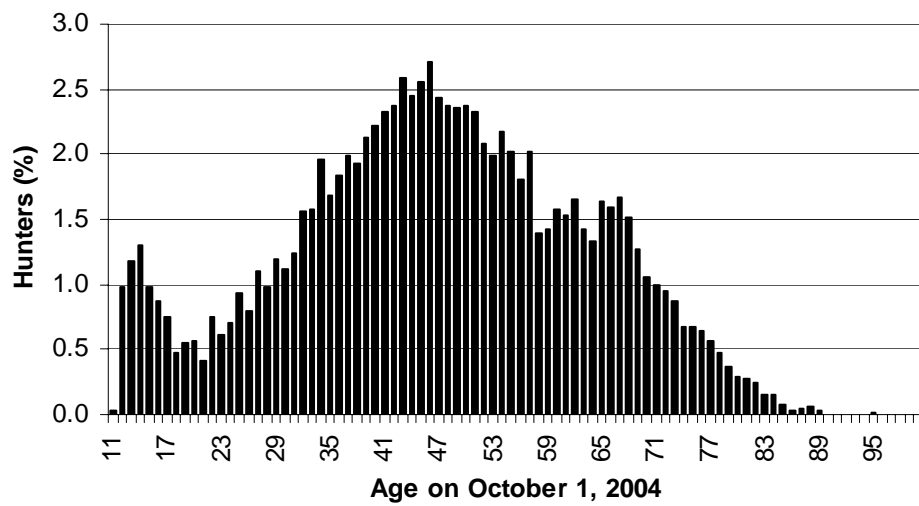


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2004 fall hunting season ($\bar{x} = 47$ years). Licenses were purchased by 20,138 people.

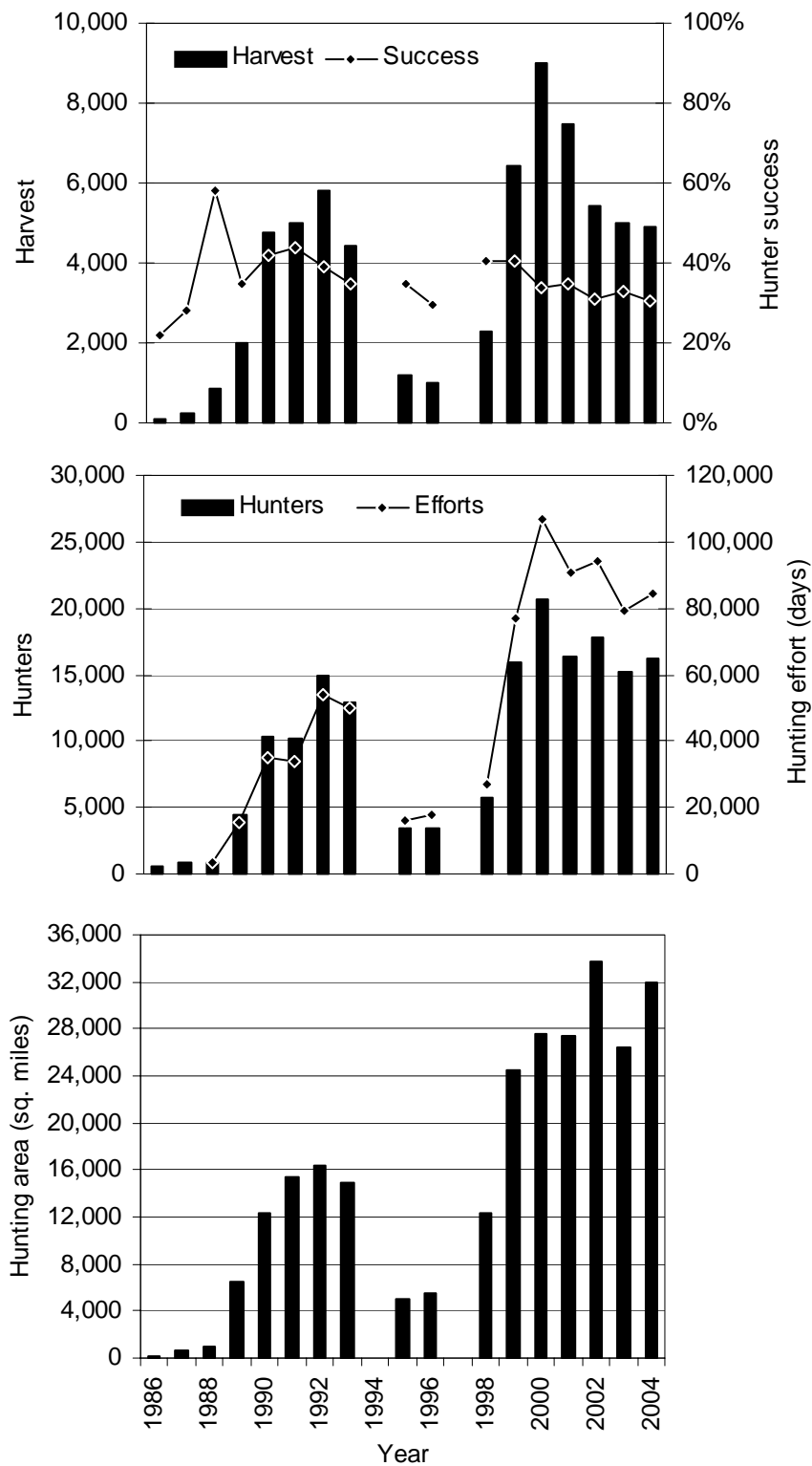


Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2004. Turkeys were not hunted during the fall in 1994 and 1997.

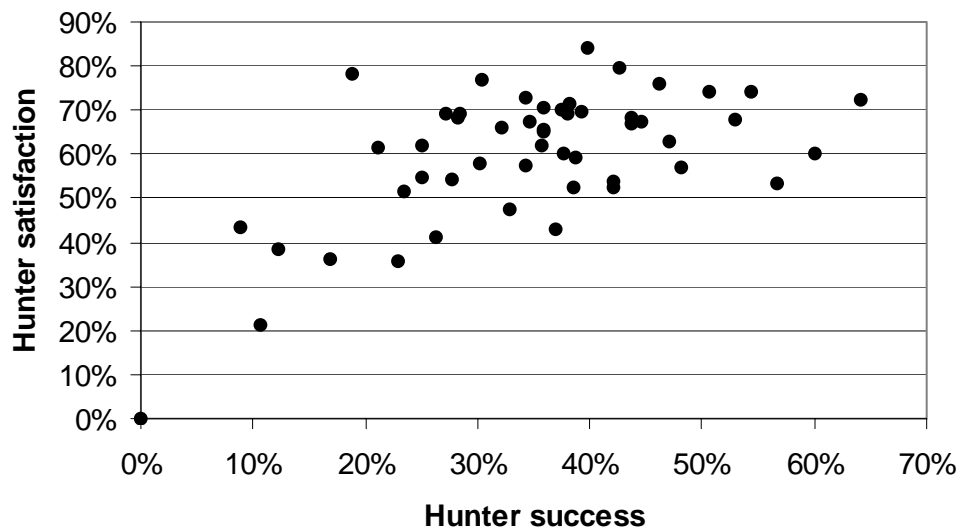


Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 51 counties in Michigan during the 2004 fall turkey hunting season.

Table 1. Number of hunting licenses available and people applying for licenses during the 2004 Michigan fall turkey hunting season.

Management unit	Licenses available (quota)	Number of eligible applicants	Number of applicants successful in drawing	Licenses remaining after drawing	Number of licenses purchased by successful applicants	Number of leftover licenses purchased by unsuccessful applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
A	800	1,661	800	0	521			521
E ^a	1,800	1,891	1,800	0	1,031			1,031
G ^a	3,200	2,048	2,047	1,153	1,297	89	676	2,062
GA ^a	3,000	1,076	1,076	1,924	682	6	329	1,017
GB ^a	3,500	2,096	2,095	1,405	1,272	7	631	1,910
GC ^a	2,000	2,835	2,000	0	1,221			1,221
J	5,000	2,790	2,790	2,210	1,624	127	372	2,123
L	10,200	5,655	4,853	5,347	3,257	323	2,160	5,740
M	1,200	432	432	768	287	3	113	403
N	1,000	439	439	561	320	2	135	457
O	2,500	859	859	1,641	577	13	189	779
Q ^a	1,200	2,639	1,200	0	725			725
T ^a	500	1,967	500	0	335			335
W	4,200	1,449	1,427	2,773	936	85	341	1,362
WA ^a	700	872	700	0	452			452
Statewide	40,800	28,709	23,018	17,782	14,537	655	4,946	20,138

^aLicenses were valid on private lands only.

Table 2. Number of hunters, hunting efforts, harvest, and hunting success during the 2004 Michigan fall turkey hunting season.

Manage- ment unit	Hunters		Hunting efforts (days)		Harvest		Hunting success	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL
A	428	19	1,920	171	99	19	23	4
E ^a	864	37	3,938	373	267	44	31	5
G ^a	1,615	86	8,625	922	452	86	28	5
GA ^a	853	38	4,162	451	306	48	36	5
GB ^a	1,537	78	7,524	805	619	91	40	6
GC ^a	1,031	44	5,592	644	269	50	26	5
J	1,584	92	7,776	902	413	83	26	5
L	4,634	225	26,753	2,916	1,212	231	26	5
M	308	18	1,621	189	99	18	32	6
N	352	20	1,650	179	146	22	41	6
O	630	30	2,955	375	260	36	41	5
Q ^a	574	29	3,119	329	181	30	31	5
T ^a	292	10	1,492	135	73	12	25	4
W	1,132	51	5,436	609	406	63	36	5
WA ^a	383	15	2,067	189	112	18	29	5
Statewide ^b	16,219	288	84,629	3,513	4,913	301	30	2

^aLicenses were valid on private lands only.

^bColumn totals may not equal statewide totals because of rounding errors.

Table 3. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2004 Michigan fall turkey hunting season, summarized by county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Alcona	183	23	734	122	43	13	23	7	52	8
Alger	24	16	67	52	3	5	12	19	39	36
Allegan	416	145	2,276	1,042	118	78	28	16	69	17
Antrim	316	75	1,292	456	122	49	39	13	59	13
Arenac	162	37	773	231	78	27	48	12	57	12
Barry	764	193	4,580	1,657	291	124	38	13	69	13
Bay	34	13	163	89	12	7	37	18	43	19
Berrien	147	89	773	578	16	30	11	19	21	25
Branch	272	121	1,433	916	83	67	30	21	77	19
Calhoun	617	177	2,637	964	270	121	44	15	67	14
Cass	364	139	2,572	1,258	33	42	9	11	44	20
Charlevoix	123	49	599	335	65	36	53	20	68	19
Cheboygan	283	72	1,541	548	71	38	25	12	55	14
Clare	293	46	1,362	295	113	31	39	9	52	9
Clinton	339	77	1,774	525	118	48	35	12	68	12
Delta	481	38	2,268	330	203	34	42	6	54	6
Dickinson	300	20	1,654	269	99	18	33	6	47	6
Eaton	322	75	1,546	506	126	49	39	12	70	12
Emmet	171	62	656	310	45	30	26	16	41	18
Genesee	65	22	325	136	18	11	27	14	69	16
Gladwin	226	41	971	232	68	25	30	9	58	10

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2004 Michigan fall turkey hunting season, summarized by county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Gratiot	272	71	1,394	429	97	44	36	13	62	14
Hillsdale	132	38	668	299	25	17	19	12	78	12
Huron	40	10	177	55	13	6	32	12	66	12
Ingham	208	62	938	315	58	26	28	12	54	15
Ionia	325	76	2,088	660	92	43	28	11	68	12
Iosco	144	22	664	140	50	14	34	8	57	9
Isabella	392	62	1,791	407	199	48	51	9	74	8
Jackson	183	43	945	328	69	27	38	12	60	12
Kalamazoo	321	130	2,017	1,252	128	84	40	20	84	15
Kent	521	88	2,576	633	228	63	44	10	68	9
Lapeer	196	32	1,014	235	67	20	34	9	73	8
Livingston	165	41	862	324	62	27	38	13	70	12
Macomb	14	10	70	68	8	8	60	34	60	34
Marquette	90	25	346	112	51	19	57	14	53	15
Menominee	346	22	1,605	178	146	22	42	6	52	6
Midland	382	62	1,802	430	180	46	47	9	63	9
Montcalm	853	56	4,133	517	306	48	36	5	65	6
Muskegon	384	78	1,680	422	178	56	46	11	76	10
Oakland	43	17	264	118	23	12	54	20	74	18
Otsego	303	74	1,533	487	51	32	17	10	36	13
Ottawa	294	70	1,201	392	188	58	64	13	73	12

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2004 Michigan fall turkey hunting season, summarized by county

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Presque Isle	200	61	801	294	46	30	23	13	36	15
Roscommon	11	10	53	64	0	0	0	0	0	0
Saginaw	213	23	1,124	169	95	17	45	7	67	7
St. Clair	151	29	857	243	64	20	43	11	80	9
St. Joseph	332	133	2,224	1,043	127	84	38	20	72	19
Sanilac	86	18	395	89	22	7	25	8	62	10
Shiawassee	132	37	928	354	47	23	36	14	66	14
Tuscola	104	14	528	103	37	9	36	8	70	7
Van Buren	622	177	3,380	1,217	131	84	21	12	62	15
Unknown	3,312	268	16,573	1,932	131	52	4	2	45	4

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 4. Number and proportion of hunters hunting on private and public lands during the fall 2004 Michigan turkey hunting season.

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
A	264	24	62	5	118	20	27	5	42	13	10	3	4	5	1	1
E ^a	864	37	100	0	0	0	0	0	0	0	0	0	0	0	0	0
G ^a	1,615	86	100	0	0	0	0	0	0	0	0	0	0	0	0	0
GA ^a	853	38	100	0	0	0	0	0	0	0	0	0	0	0	0	0
GB ^a	1,537	78	100	0	0	0	0	0	0	0	0	0	0	0	0	0
GC ^a	1,031	44	100	0	0	0	0	0	0	0	0	0	0	0	0	0
J	940	105	59	6	386	81	24	5	258	69	16	4	0	0	0	0
L	4,571	230	99	1	47	52	1	1	16	30	0	1	0	0	0	0
M	186	21	60	6	68	16	22	5	45	13	15	4	9	6	3	2
N	285	22	81	5	31	12	9	3	32	12	9	3	4	5	1	1
O	456	38	72	5	114	27	18	4	54	20	9	3	6	7	1	1
Q ^a	574	29	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T ^a	292	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
W	1,096	54	97	2	32	21	3	2	5	8	0	1	0	0	0	0
WA ^a	383	15	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Statewide ^b	14,948	298	92	1	797	106	5	1	451	81	3	<1	23	11	0	0

^aLicenses were valid on private lands only.

^bNumber of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunt.

Table 5. Statewide turkey harvest during the 2004 Michigan fall turkey hunting season, summarized by land ownership type and turkey sex and age.

Land ownership Turkey sex and age	Harvest	
	Total	95% CL
Private lands		
Males	2,787	241
Juveniles	504	109
Adults	2,244	220
Unknown	39	20
Females	1,913	208
Unknown sex	7	6
Subtotal – Private lands ^a	4,707	298
Public lands		
Males	92	35
Juveniles	18	15
Adults	71	31
Unknown	0	0
Females	111	37
Unknown sex	0	0
Subtotal – Public lands ^a	203	50
Unknown lands	3	5
Grand total ^a	4,913	301

^aColumn totals may not equal subtotals and grand total because of rounding errors.

Table 6. Number of turkeys harvested on private and public lands during the 2004 Michigan fall turkey hunting season.

Management unit	Private lands		Public lands		Unknown ownership	
	Total	95% CL	Total	95% CL	Total	95% CL
A	68	16	31	11	0	0
E ^a	267	44	0	0	0	0
G ^a	452	86	0	0	0	0
GA ^a	306	48	0	0	0	0
GB ^a	619	91	0	0	0	0
GC ^a	269	50	0	0	0	0
J	323	75	90	42	0	0
L	1,212	231	0	0	0	0
M	74	16	25	10	0	0
N	136	21	10	6	0	0
O	223	35	34	16	3	5
Q ^a	181	30	0	0	0	0
T ^a	73	12	0	0	0	0
W	393	62	14	14	0	0
WA ^a	112	18	0	0	0	0
Statewide ^b	4,707	298	203	50	3	5

^aLicenses were valid on private lands only.

^bColumn totals may not equal statewide total because of rounding errors.

Table 7. How hunters rated their hunting experience during the 2004 Michigan fall turkey hunting season.

Management unit	Satisfaction level (% of hunters)					
	Excellent	Very good	Good	Fair	Poor	No answer
A	20	17	21	18	24	2
E ^a	13	16	23	24	23	1
G ^a	15	15	36	22	10	2
GA ^a	22	20	26	17	13	3
GB ^a	21	19	29	18	11	2
GC ^a	17	21	29	15	17	1
J	12	18	19	24	25	2
L	13	18	31	16	18	3
M	15	15	28	18	21	2
N	20	18	24	21	16	1
O	18	14	24	24	17	2
Q ^a	20	20	31	14	12	3
T ^a	25	19	24	20	12	1
W	16	20	29	17	17	1
WA ^a	18	20	28	20	13	2
Statewide	13	17	29	20	18	2

^aLicenses were valid on private lands only.